MICRONTA®

DYNAMIC TYPE TRANSISTOR CHECKER

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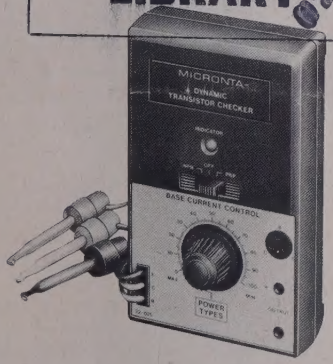


CAT. NO. 22-025

CUSTOM MANUFACTURED FOR RADIO SHACK A DIVISION OF TANDY CORPORATION

This MICRONTA Dynamic Type Transistor Checker can check various types of transistors in or out of a circuit.

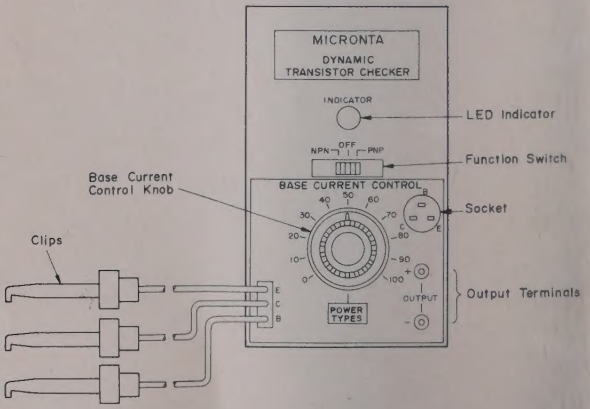
This Transistor Checker uses a dynamic test method for determining whether the transistor is good or bad by placing it in an actual operating circuit.

All you need to do is insert the transistor under test into the socket on the front panel or connect it to the Clips provided. You can check any transistor (from low to high power type) — if it is good or bad — without damaging the transistor.

NOTE: In general, transistors can be classified into the following three types:

	Type	Absolute Maximum Rating (Watts)
1	Low Power	less than 1
2	Medium Power	1 — 10
3	High Power	10 or more

Absolute maximum rating = collector dissipation of transistor expressed in wattage.

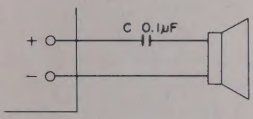


This Checker can also be used for selecting transistors with the same characteristics by reading settings of the BASE CURRENT CONTROL and comparing them. With two transistors of the same type, the one having the higher BASE CURRENT CONTROL reading has the higher gain. Also the brightness of LED Indicator shows the magnitude of the output signal, and can be adjusted with the BASE CURRENT CONTROL knob.

You can also check transistors with little collector current by connecting an AC Voltmeter or Oscilloscope to the OUTPUT Terminals.

The OUTPUT Terminals can be used for the following purposes:

1. As output terminals for amplified signals.
2. For graphic representation of waveforms (when connected to an Oscilloscope).
3. As a signal injector; in this case connect to a speaker via a capacitor (about 0.1 μF). If you don't hear a sound, or it is very weak, try disconnecting the capacitor and connect the speaker directly to the OUTPUT Terminals. (Under this condition the LED may go out due to the extra load of the speaker — this is normal and occurs only when using the Checker in this special signal tracer application.)



4. As a continuity tester; in this case try the following:
   1) Connect any good transistor to appropriate Clips or socket with nothing connected to the OUTPUT Terminals.
   2) Rotate the BASE CURRENT CONTROL knob toward MIN (clockwise) and note where oscillation just stops (LED begins to blinking).

3) Connect Test Leads (Cat. No. 278-705) to the OUTPUT Terminals and place the leads across any part under test. If the part under test is conductive, the LED goes out. Using this technique you can check if the lead or part has continuity.

HOW IT WORKS

This Transistor Checker uses a specially designed pulse generator which steps up an AC signal (generated by the transistor under test) to a value sufficient to light the LED.
The brightness of the LED varies according to the magnitude of the output signal — the more output signal, the brighter the LED.
The BASE CURRENT CONTROL knob can be rotated to decrease base current from 0 (MAX.) to 100 (MIN.) so you can set collector current. The reading where oscillation stops (LED stops blinking) indicates the transistor gain. The greater the number, the higher the gain.

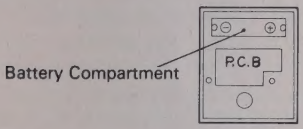
MATCHING TRANSISTOR CHARACTERISTICS

If the characteristics of one transistor correspond to another, the BASE CURRENT CONTROL setting where the oscillation stops should be equal for both transistors. These results are for comparison only and the CONTROL settings do not actually respresent Beta values (or any other unit).

BATTERY INSTALLATION/REPLACEMENT

1. Remove screws from the bottom of the Tester.
2. Slip the battery ribbon over an "AA" penlight cell (Cat. No. 23-582 or 23-552).

3. Install the battery inside the compartment as illustrated below. Observe correct polarity (the plus end to ⊕ terminal, minus to ⊖).
4. Fasten Case back on Tester with screws previously removed.

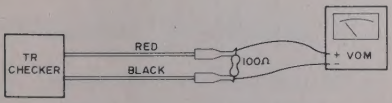


NOTE: Do not leave a weak or dead battery in the compartment; it may leak damaging chemicals that will ruin the Tester permanently. Also if you are not going to use your Tester for a few weaks, remove battery.

TO CHECK INTERNAL BATTERY

Touch black Clip (E) and red Clip (C) together for a split-second to see if the LED lights up. If it lights, the internal battery still has adequate power.
(If the voltage across the black and red clips is below 1.1 volts when they are connected across a 100Ω resistor, the internal battery should be replaced with a fresh one.)

NOTE: Set Function Switch to NPN.



OPERATION

1. Set BASE CURRENT CONTROL knob to POWER TYPES.
2. Insert the transistor into socket or connect to Clips. Be sure to connect Black to Emitter; Red to Collector and Green to Base.
3. Set Function Switch to match the type of transistor under test — either PNP or NPN. You can check any transistor from low power type to high power type under this condition.
4. If the transistor has a current amplifying capability, the LED will light. The lit LED means the transistor is not open or shorted.
5. If the Function Switch is not set to the proper position (PNP or NPN), the LED will not come on. In this case, recheck transistor lead connections to see if this is the problem.
6. If the LED does not light even after you've double-checked and reconnected clips, the transistor under test is bad (open or shorted).
7. If you want to select transistors out of a group for maximum gain, keep track of BASE CURRENT CONTROL settings (where the LED turns on and off). Since a reading of "0" is the maximum base current and "100" the minimum base current, higher numbers mean greater gain. The same technique can be used to select transistors with similar gain characteristics.
8. When not in use, set Function Switch to OFF position.

TO CHECK "IN-CIRCUIT" TRANSISTORS

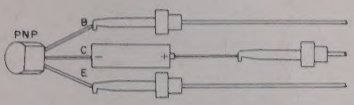
1. Turn off power to the unit in which the transistor is installed.
2. Set BASE CURRENT CONTROL knob to POWER TYPES.
3. Connect Clips to the transistor under test (in-circuit).
4. Flip Function Switch to either PNP or NPN to match the transistor type.

5. Most transistors will light up the LED if they are OK. At this point, if you turn on the power switch to the circuit under test, a signal will be heard through the speaker (Transistor Checker now acting as a signal injector).

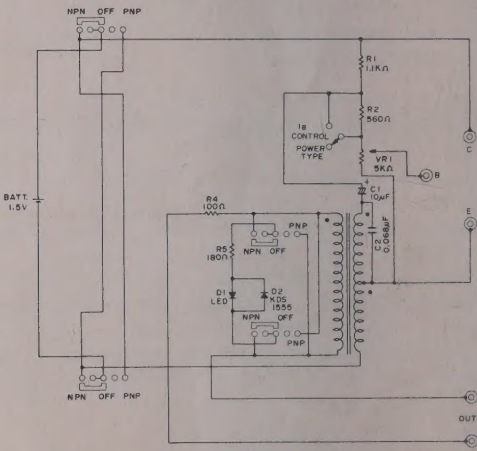
TO CHECK SMALL SIGNAL TRANSISTORS

In case the output signal is too small to light up the LED, try the following;

- Connect a Voltmeter (VTVM) or Oscilloscope to the Output Terminals, or
- Set Base Current Control to POWER TYPES, or
- Rotate Control Knob from 0 to 100 to see if there is a point where the output signal increases sharply, or
- If none of the above procedures work, add an extra 1.5 volt battery to the Collector lead (observe correct battery polarity).



SCHEMATIC DIAGRAM



RADIO SHACK LIMITED WARRANTY

This equipment is warranteed against defects for 90 days from date of purchase. Within this period, we will repair it without charge for parts and labor. Simply **bring your sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover equipment subjected to misuse or accidental damage.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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